

THE MINERAL INDUSTRY OF KAZAKHSTAN

By Richard M. Levine

Kazakhstan is the second largest country in land area after Russia to form from the republics of the former Soviet Union. It is endowed with large reserves of a wide range of minerals. Kazakhstan was a major producer of a large number of metals that included beryllium, bismuth, cadmium, chromium, copper, ferroalloys, lead, magnesium, rhenium, titanium, uranium, and zinc. It produced significant amounts of a number of other mineral products that included arsenic, barite, coal, gold, molybdenum, natural gas, oil, phosphate rock, and tungsten. Kazakhstan has commercial reserves of 3 ferrous metals, 29 nonferrous metals, 2 precious metals, 84 types of industrial minerals, and coal, natural gas, and petroleum (Zharkenov, 1997).

In 1999, Kazakhstan's gross domestic product increased in constant prices by 1.7% compared with that of 1998 and industrial output increased by 2.2% compared with that of 1998 (Interfax Statistical Report, 2000b, c). Production increased for almost all metals compared with that of 1998, with the largest production increases reported for chromite, ferroalloys, manganese ore, pig iron, refined lead, and steel. Although natural gas and crude petroleum output increased by about 25% and 16%, respectively, production of coal fell by about 17% compared with that of 1998. Output in the oil refining and nonmetallic mineral products sectors fell by 29.1% and 4.8%, respectively, compared with those of 1998 (Interfax Statistical

Report, 2000b). In the oil refining sector, however, output for wide fraction light hydrocarbons increased by 82% and in nonmetallic minerals, increases in output were reported for barite and cement (Interfax Statistical Report, 2000a, b).

In 1999, a significant percentage of Kazakhstan's mineral output was exported. Mineral products accounted for 44% of total exports, with metals and oil and gas condensate constituting the majority of these exports (Mining Journal, 2000).

For more extensive coverage of the mineral industry of Kazakhstan, see the 1998 Minerals Yearbook, volume III, Mineral Industries of Europe and Central Eurasia.

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TABLE 1
KAZAKHSTAN: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1995	1996	1997	1998	1999 e/
METALS					
Alumina thousand tons	1,022	1,083	1,095	1,085	1,152 3/
Arsenic trioxide e/	1,500	1,500	1,500	1,500	1,500
Bauxite	3,071,000	3,140,000 e/	3,380,000 e/	3,436,800 r/	3,606,500 3/
Beryllium, metal e/	100	100	100	220 r/	221 3/
Bismuth, metal e/	33 3/	50	50	50	55
Cadmium, metal e/	794 3/	800	1,000 r/	1,450 r/	1,061 3/
Chromite	2,417,000	1,190,000	1,798,300 r/	1,602,700 r/	2,405,500 3/
Cobalt, mine output, metal content e/	300	300	300	300	300
Copper:					
Mine output, metal content	200,000	250,000 e/	316,166 r/	337,600 r/	374,000
Metal:					
Smelter, undifferentiated	242,800	245,000	315,960 r/	350,000 r/ e/	384,234 3/
Refined, primary	255,600	267,100	301,000	324,900 r/	361,889 3/
Gold:					
Mine output, metal content e/ kilograms	18,200	12,500	18,700	18,120 r/ 3/	19,982 3/
Metal, refined do.	10,921	9,000 e/	9,700 e/	8,900	9,604 3/
Iron and steel:					
Iron ore, marketable	14,900,000	13,200,000	12,627,000	9,335,800 r/	9,607,200 3/

See footnotes at end of table.

TABLE 1--Continued
KAZAKHSTAN: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1995	1996	1997	1998	1999 e/
METALS--Continued					
Iron and steel--Continued:					
Metal:					
Pig iron	2,528,000	2,536,000	3,000,000 e/	2,594,000	3,438,000 3/
Ferroalloys:					
Ferrochromium	511,600	352,000	600,000	542,050 r/	731,583 3/
Ferrochromiumsilicon	21,300	20,000 e/	48,000 r/ e/	33,553 r/	49,302 3/
Ferrosilicon e/	256,000	119,000	133,000	92,125 r/ 3/	140,263 3/
Silicomanganese e/	20,000	50,000	55,000	57,376 r/ 3/	73,495 3/
Other e/	10,000	10,000	9,000	183,054 r/ 3/	268,060 3/
Total	818,900	551,000	845,000 r/	908,158 r/	1,262,703 3/
Steel:					
Crude	2,963,000	3,142,000	3,900,000	3,089,000 r/	4,070,600 3/
Finished	2,100,000	2,200,000	3,000,000	2,519,000 3/	3,186,000 3/
Lead:					
Mine output, metal content	40,000	35,000 e/	31,000 e/	30,000	34,100 3/
Metal, refined, primary and secondary	88,500	70,000 e/	81,974 r/	118,632 r/	160,000
Magnesium e/	9,000	9,000	8,972 3/	9,000	9,000
Manganese ore: e/					
Crude	428,000	430,000	400,000 r/	634,100 r/ 3/	982,400 3/
Marketable	284,000 3/	285,000	230,000	399,000 3/	563,000 3/
Molybdenum, mine output, metal content e/	75	100	100	100	110
Nickel, mine output, metal content e/	9,900 3/	7,000	7,000	6,000	7,000
Silver:					
Mine output, metal content	489,000 e/	467,700	690,000 e/	726,321 r/	904,391 3/
Metal, refined	370,993	380,000 e/	390,000 e/	535,800	654,606 3/
Tin, mine output, metal content e/	15	--	--	--	--
Titanium, metal	9,592	12,500	13,000 e/	12,000 e/	12,000
Tungsten, mine output, metal content	249	--	--	--	--
Vanadium, mine output, metal content e/	924 3/	900	900	1,000	1,000
Zinc:					
Mine output, metal content	225,000 e/	225,000 e/	224,051 r/	225,600 r/	288,300 3/
Metal, smelter, primary and secondary	169,200	190,000	188,996 r/	240,728 r/	249,327 3/
INDUSTRIAL MINERALS					
Asbestos, all grades	128,400	128,700	125,000 e/	155,400 r/	139,300 3/
Barite, concentrate	NA	NA	NA	8,900 r/	13,300 3/
Boron e/	30,000	30,000	30,000	30,000	30,000
Cement	1,800,000 r/	1,120,000	661,000	600,000	800,000
Phosphate rock e/	1,700	1,700	1,000 r/	100 r/	1,000
Sulfur: e/					
Pyrites	71,000	71,000	--	--	--
Byproduct:					
Metallurgy	131,000	139,000	139,000	200,000	200,000
Natural gas and petroleum	255,000	515,000	806,000	900,000	1,100,000
Total	457,000	725,000	945,000	1,100,000	1,300,000
MINERAL FUELS AND RELATED MATERIALS					
Coal	83,300,000	76,800,000	72,600,000	69,800,000	58,200,000 3/
Natural gas	5,900,000	6,500,000	8,100,000	7,900,000	9,900,000 3/
Petroleum, crude:					
Gravimetric units	20,500,000	23,000,000	25,800,000	25,900,000	30,000,000 3/
Converted, volumetric units e/	42-gallon barrels	151,000,000	169,000,000	190,000,000	221,000,000
Refinery products	13,600,000	11,000,000 e/	9,200,000	8,000,000 e/	5,700,000
Uranium concentrate, U content	1,630	1,320	1,000	1,250	1,375 3/

e/ Estimated. r/ Revised. NA Not available. -- Zero.

1/ Table prepared by Richard M. Levine and formatted by Glenn J. Wallace, International Data Unit; includes data available through February 2001.

2/ Estimated data are rounded to no more than three significant digits; may not add to totals shown.

3/ Reported figure.

TABLE 2
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 1999

(Metric tons unless otherwise specified)

Commodity	Major operating facility	Location	Annual capacity e/
Alumina	Pavlodar aluminum plant	Pavlodar	1,200,000.
Arsenic, trioxide	Chimkent polymetallic enterprise and other nonferrous metallurgical enterprises	Shymkent (Chimkent) 1/	3,500.
Asbestos	Dzhetygara complex	Qostanay (Kustanay) region 1/	1,000,000 total.
Do.	Chilisay complex	Aqtobe (Aktyubinsk) phosphorite basin 1/	
Barite	Karagaylinskiy and Zhayrem mining and beneficiation complexes	Karagayliy region Zhayrem deposit	300,000 total.
Do.	Tujuk Mine	Almaty region	
Do.	Achisay polymetallic complex	Kentau region	
Bauxite	Turgay, Krasnooktyabr bauxite mining complexes	Central Kazakhstan	600,000 total.
Beryllium, metal	Ulbinskiy metallurgical plant	Oskemen (Ust-Kamenogorsk) 1/	NA.
Bismuth, metal	Ust-Kamenogorsk lead-zinc metallurgical plant	do.	70 total.
Do.	Leninogorsk lead smelter	Leninogorsk	
Cadmium	Leninogorsk mining and beneficiation complex	do.	1,200.
Chromite	Donskoy mining and beneficiation complex	Khromtau region	3,800,000.
Coal	Karaganda Basin	Central and north-central parts of the country	50,000,000.
Do.	Ekibastuz Basin	do.	85,000,000.
Do.	Maykuben Basin	do.	10,000,000.
Do.	Turgay Basin	do.	1,000,000.
Copper, mining, recoverable copper content	Balkhash	Zhezkazgan (Dzhezkazgan) region 1/	200,000.
Do.	Dzhezkazgan	Zhezkazgan region	250,000.
Do.	Irtysk	Ertis (Irtysk) region	10,000.
Do.	Leninogorsk	Leninogorsk region	15,000.
Do.	Zhezkent	Zhezkent region	25,000.
Do.	Zyryanovsk mining and beneficiation complexes	Zyryanovsk region	5,000.
Do.	East Kazakhstan copper-chemical complex	East Kazakhstan region	10,000.
Copper, metallurgy, metal	Balkhash	Zhezkazgan region	150,000.
Do.	Zhezkazgan	do.	250,000.
Do.	Irtysk smelting and refining complex	Ertis region	40,000.
Do.	Ust-Kamenogorsk plant	Oskemen	37,100 (blister copper). 2/ 6,600 (refined copper). 2/
Ferroalloys	Aktyubinsk plant	Aqtobe	High-carbon 60% ferrochrome, 150,000; medium-carbon 60% ferrochrome, 130,000.
Do.	Aksu (Yermak) plant	Aksu (Yermak) 1/	Ferrosilicon 700,000; ferrosilicochrome, 700,000; high-carbon ferrochrome, 400,000. silicomanganese, 90,000.
Gallium	Pavlodar aluminum plant	Pavlodar	NA.
Gold	Byproduct of polymetallic ores and native gold mining	Byproduct gold collocated with nonferrous metals mining	30.
Iron and steel:			
Pig iron	Ispat-Karmet Steelworks	Karaganda	5,000,000.
Steel, crude	do.	do.	6,300,000.
Iron ore, marketable	Sokolovsko-Sarbay, and Lisakovskiy mining and metallurgical complexes	Qostanay region	25,000,000 total.

See footnotes at end of table.

TABLE 2--Continued
KAZAKHSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 1999

(Metric tons unless otherwise specified)

Commodity	Major operating facility	Location	Annual capacity e/
Lead and zinc, mining (recoverable lead and zinc content of ore)	Achisay	Kentau and Karatau regions 1/	Lead 40,000, zinc 20,000.
Do.	Akchatau	Zhezkazgan region	Lead 10,000, zinc 30,000.
Do.	Irtysh (apparently closed)	Oskemen region	Lead 10,000, zinc 50,000.
Do.	Karagayly	Karagayly region	Lead 20,000, zinc 55,000.
Do.	Leninogorsk	Leninogorsk region	Lead 60,000, zinc 120,000.
Do.	Tekeli	Tekeli and Taldyqorghan (Taldi-Kurgan) regions 1/	Lead 20,000, zinc 30,000.
Do.	Zhezkent	Semey (Semjipalatinsk) region	NA.
Do.	Sary-Arkapolimetal	Zhayrang (Zhayrem) region	Lead 20,000, zinc 40,000.
Do.	Zyryanovsk complexes	Zyryanovsk region	Lead 20,000, zinc 60,000.
Do.	East Kazakhstan copper-chemical complex	East Kazakhstan region	Zinc 15,000.
Lead, refined	Ust-Kamenogorsk plant	Oskemen	145,000.
Do.	Chimkent	Shymkent	NA.
Manganese, crude ore	Atasurda	Atasu	2,550,000 total.
Do.	Kazakhmarganets	Zhezdy	
Do.	Sary-Arkapolimetal	Zhayrang (Zhayrem) region	
Molybdenum, mining (recoverable molybdenum content of ore)	Kounrad Mine	Balqash complex	6,000 total.
Do.	Karaobinskoye deposit	Karaoba region	
Do.	Sayak deposit	Sayaq (Sayak) region 1/	
Molybdenum, metal	Akchatau molybdenum metal plant	Zhezkazgan region	NA.
Petroleum, crude and natural gas	Akyubinskunaigaz	Aqtobe region	28,000,000 (total crude oil).
Do.	Embamunaigaz	Emba districk	10 million cubic meters (total natural gas).
Do.	Hurricane Kumkol Munai	Aral Sea region	
Do.	Karachaganak field	Northwestern Kazakhstan	
Do.	Mangistaumunaigaz	Mangghyshlak (Mangyshlak) Peninsula 1/	
Do.	Tengizchevroil joint venture	Tengiz deposit	
Do.	Uzenmunaigaz	Uzen deposit	
Petroleum, refined	Atyrau refinery	Atyrau	5,200,000 (crude oil throughput).
Do.	Pavlodar refinery	Pavlodar	8,100,000 (crude oil throughput).
Do.	Symkent refinery	Shymkent	7,900,000 (crude oil throughput).
Phosphate rock	Karatau production association	Zhambyl (Dzhambul) and Shymkent regions	10,000,000 total.
Do.	Chilisay mining directorate	Aqtobe phosphorite basin	
Rare metals (columbium, indium, selenium, tellurium)	Aktau complex	Aktau (Shevchenko)	NA.
Do.	Belogorsky rare metals plant	Belgorsiy (Belogorsk) 1/	NA.
Do.	Chimkent polymetallic plant	Shymkent	NA.
Do.	Ust-Kamenogorsk lead-zinc plant	Oskemen	NA.
Do.	Akchatau mining and beneficiation complex	Zhezkazgan region	NA.
Rhenium	Balkhash copper mining and metallurgical complex	do.	NA.
Tantalum	Yermak ferroalloy plant	Aksu	NA.
Tin	Akchatau mining and beneficiation complex	Akzhal deposit, Zhezkazgan region	700.
Titanium, metal	Ust-Kamenogorsk titanium-magnesium plant	Oskemen	35,000.
Silver, byproduct	Ust-Kamenogorsk	do.	1,200 total.
Do.	Leninogorsk	Leninogorsk	
Do.	Chimkent metallurgical plants	Shymkent	
Uranium, U content	Stepnogorsk	Stepnogorsk	3,500 total.
Do.	Shevchenko	Aqtau	
Do.	Taboshara	Taboshara	
Do.	Prikaspiskiy ore enrichment center	Aqtau	
Do.	Tselinny chemical complex	Stepnogorsk	
Zinc, metal	Leninogorsk	Leninogorsk	106,500. 2/
Do.	Ust-Kamenogorsk plant	Oskemen	215,000. 2/

e/ Estimated. NA Not available.

1/ New names and spellings are given when available. The old name will appear in parentheses the first time the new name is used.

2/ Reported figure.